Smith Geotechnical
ENGINEERING CONSULTANTS

January 9, 2004
Project No.: 03-038

Donald Cadwallader
Town of Eaton
223 First Street
Eaton, Colorado 80615

Subject: Preliminary Inspection of the Sugar Mill Facility

Mr. Cadwallader,

We have completed a preliminary inspection of the Sugar Mill. The intent of the inspection was to give a cursory assessment of the structural integrity of the facility in order to determine if asbestos remediation and subsequent demolition are feasible without first conducting major structural work. The scope of our inspection included visual assessment of the primary structural elements of the facility including the steel columns and beams, concrete floor slabs, exterior walls, and roof. This letter summarizes the findings of the inspection and highlights areas of structural concern.

It was not the intent of this inspection to identify all safety concerns. A thorough risk analysis and safety inspection should be conducted prior to conducting any other work in the building.

Steel Beams and Columns

Most of the steel beams and columns appear intact and show only minor corrosion or deterioration. There are isolated instances where beams or columns have been damaged as shown in Photographs 1-2. As a general rule, the steel beams above boilers and other equipment show significant corrosion as shown in Photograph 3. These areas do not threaten the overall integrity of the structure but should be assessed individually before proceeding with work near them. Specific areas of damage are noted on the accompanying sketches.

Floor Slabs

The condition of the floor slabs is suspect. The structural integrity is difficult to determine visually, but it is apparent that the slabs are thin and possibly insufficiently reinforced. In many areas the concrete on the bottom side of the floors has fallen off and the reinforcement is exposed as shown in Photographs 4-5. In some of these areas, the reinforcement appears to be barbed wire. Barbed wire reinforcement would not be

expected to perform well and it is apparent that it has deteriorated in many areas. In several locations, there are holes in the floor slabs as shown in Photographs 6-7. The condition of the floors does not jeopardize the overall integrity of the structure but the floors should not be relied on to support significant loads. In lieu of detailed structural investigation and analysis, the slabs would need to be shored or reinforced before supporting significant additional loads. Alternatively, it would be possible to construct temporary flooring on top of the slabs that would span across the floor beams and carry the applied loads. In areas where concrete is falling off of the bottom of slabs, it may be necessary to construct overhead protection to prevent concrete from falling on workers below. Specific areas of weakness are noted in the accompanying sketches.

Exterior Walls

In general, the exterior brick walls appear sound; however, there are some holes and loose bricks in areas. Many bricks along the roof parapet are loose or missing as shown in Photographs 8-9. The southwest corner of the building is damaged and has many loose and missing bricks as shown in Photograph 10. There is a fairly large hole on the east side of the south end of the building as shown in Photograph 11. In all of these areas, the loose bricks should be removed or stabilized before other work begins. The arches above many of the windows are deteriorated as shown in Photograph 12. The window openings in areas such as these should be shored to prevent collapse. Many of the window openings have been shored already with mortar or wood framing. The damage noted in these areas is primarily superficial and does not affect the integrity of the structure, but proper precaution should be taken to prevent bricks from falling on workers below. Damaged areas are noted on the accompanying sketches.

Roofs

There are some holes in parts of the roof of the facility as shown in Photographs 13-14; but, in general, the roof is in fair condition. The roof itself is not expected to carry significant loads during remediation or demolition work; however, care should be taken to prevent debris from falling through the holes in the roofs or onto the lower roof of the east side of the structure when working on the higher floors of the west side of the structure. A wood-frame structure exists on the roof of the northeast portion of the facility as shown in Photographs 15. It was inaccessible but it appears unstable. This portion of the structure should be removed in its entirety before working near or under it. If this structure contains asbestos, it will be more complicated than normal to demolish. Areas of the roof that are of specific concern are noted on the accompanying sketches.

General Concerns

Most of the stairways have broken or missing stairs. The stairways would need to be repaired or replaced to facilitate safe work. In addition, all of the handrails around

floor openings should be thoroughly inspected and reinforced as necessary prior to conducting extensive work in the facility.

A partially demolished brick wall exists in the southeast wing of the first floor as shown in Photograph 16. This wall is unstable and should be demolished in its entirety before proceeding with work in the vicinity. A damaged concrete block partition wall also exists on the south wall of the same area. It should be completely demolished prior to conducting other work in the vicinity.

The concrete chimney was not evaluated. A demolition specialist should be consulted prior to demolition of the chimney.

Summary

In general, the structure appears to be sound and stable except as noted herein. The primary structural frame appears intact and could be used to support loads during asbestos remediation and demolition operations. The floor slabs are generally weak and should be shored or braced prior to supporting significant loads. The exterior walls are generally intact but loose bricks should be stabilized prior to further work. It appears that with adequate safety measures, the remediation and demolitions could be safely pursued in most of the facility with relatively minor structural augmentations.

This inspection has been general and preliminary in nature. No evaluation has been conducted for specific structural loadings and no testing of structural components has been conducted. Prior to conducting work in any area, the structure and particularly the floor slabs, should be analyzed for the specific loads that will be applied.

There are significant safety concerns in most areas of the facility. Due to the deteriorated condition of the floor slabs and equipment in the facility and the large amount of asbestos present in the facility, we strongly recommend that more positive measures be taken to prevent unauthorized access to the facility.

Sincerely,
SMITH GEOTECHNICAL

David W. Marsh, P.E.

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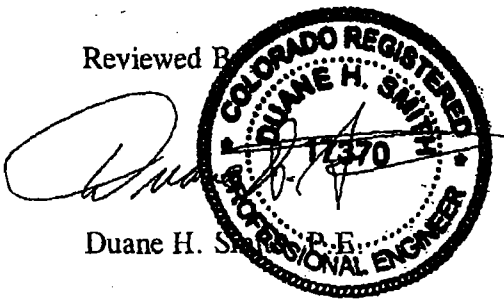

Duane H. S P.E.

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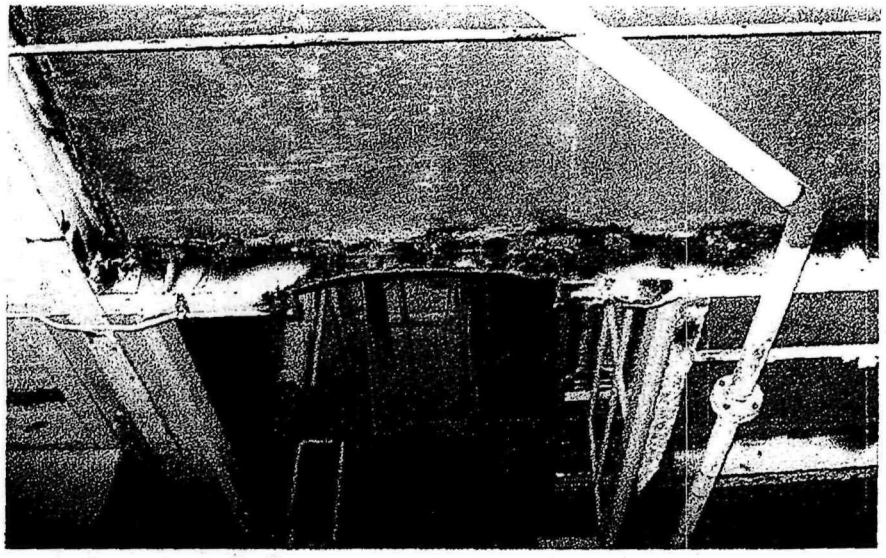
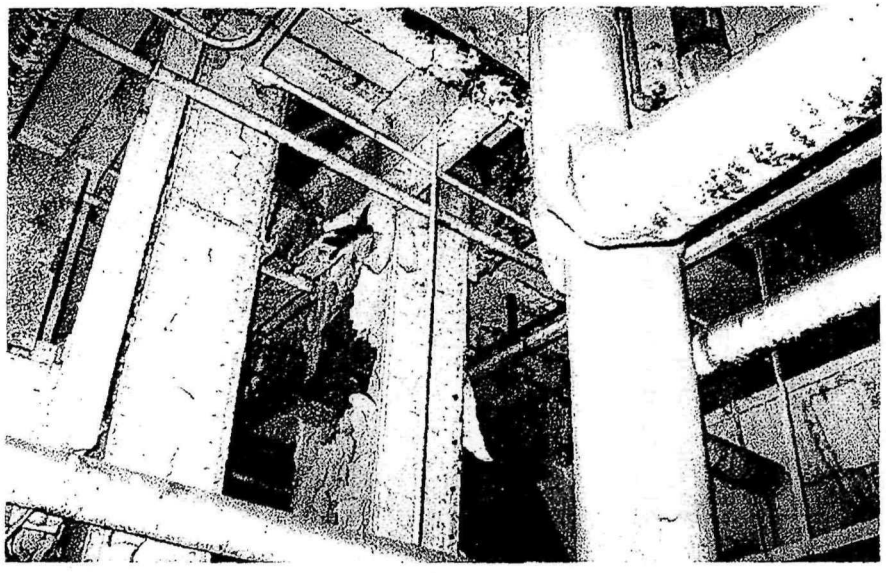
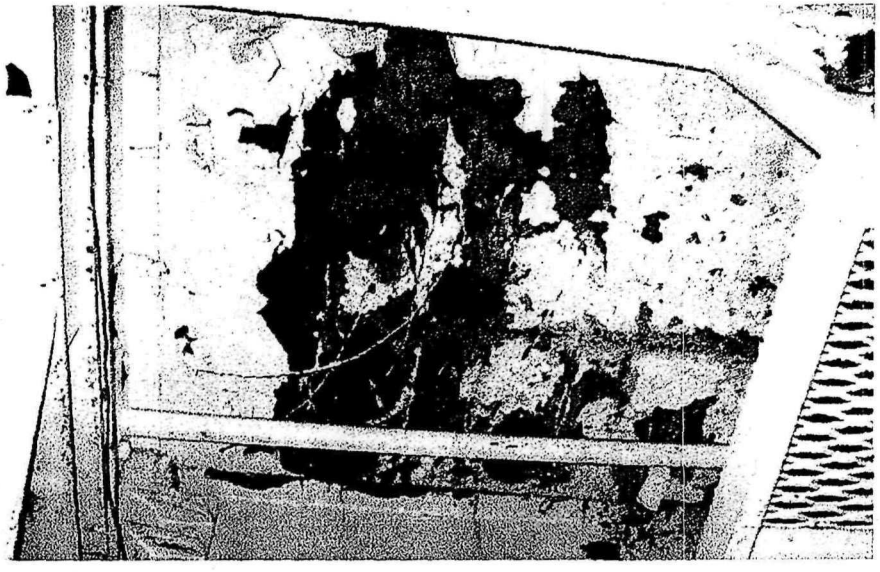
Photograph 1 - Unsupported Column



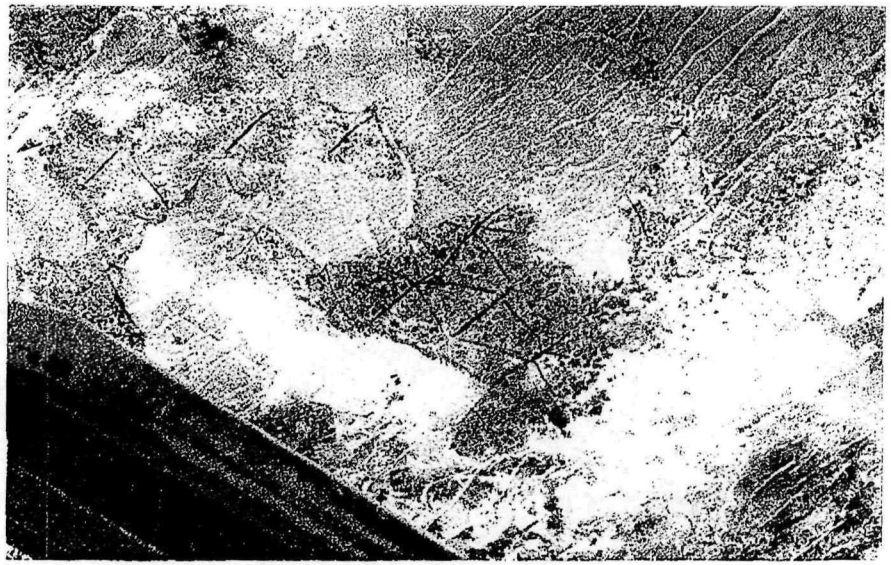
Photograph 2 - Beam Cut at Stairway Opening



Photograph 3 - Corrosion Near Boiler



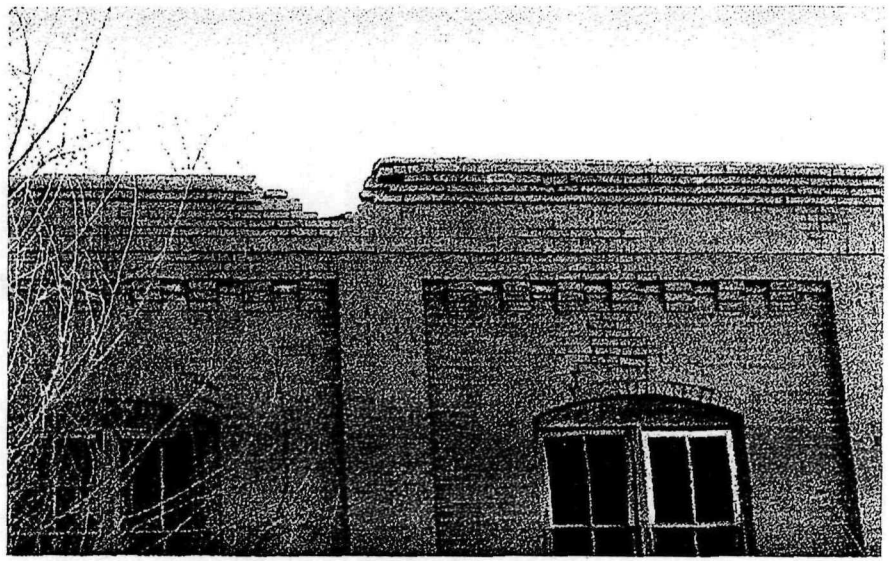
Photograph 4 - Deteriorated Floor Slab with Exposed Reinforcement



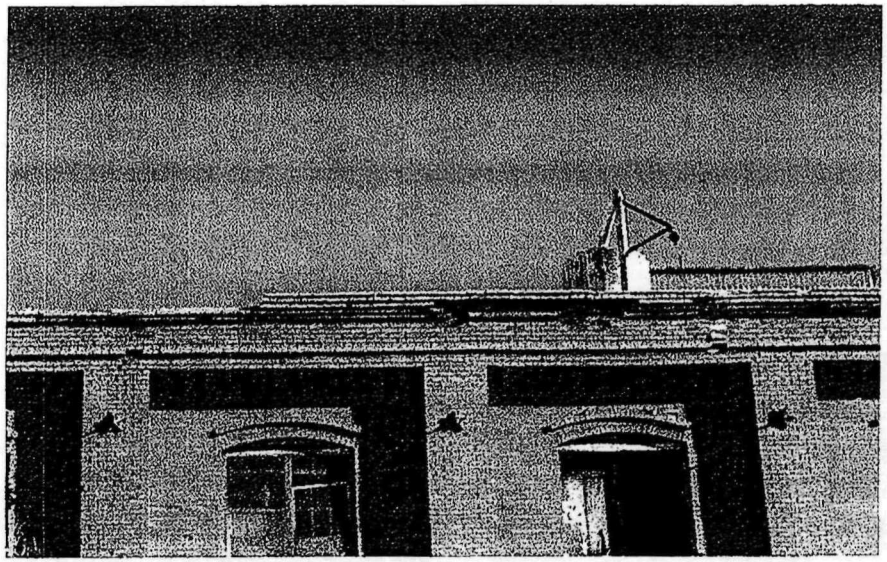
Photograph 5 - Deteriorated Floor Slab with Exposed Reinforcement

Photograph 6 - Hole in 4th Floor Slab

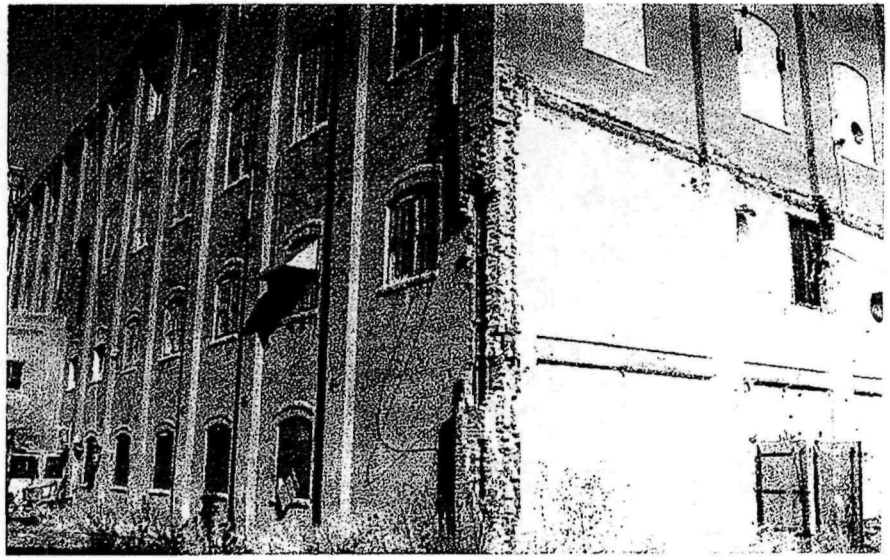
Photograph 7 - Holes in 2nd Floor Slab



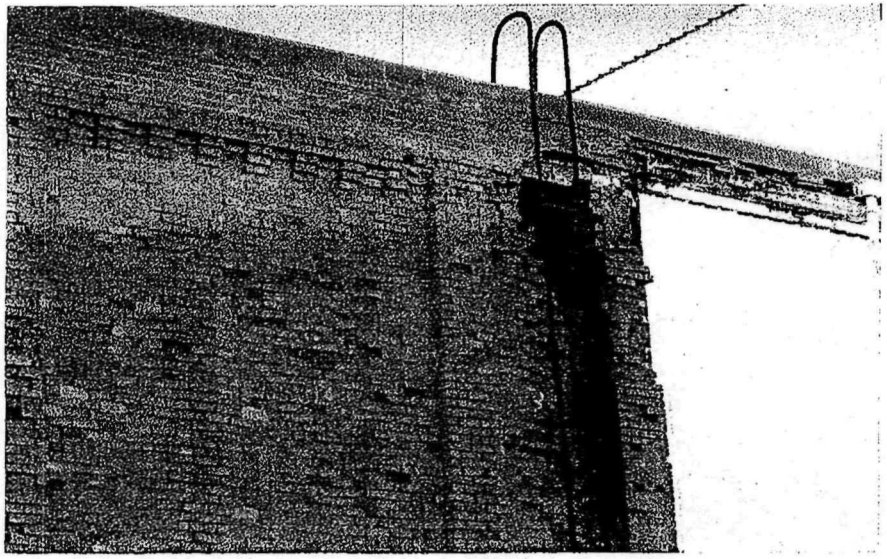
Photograph 8 - Loose Bricks at Roof Parapet



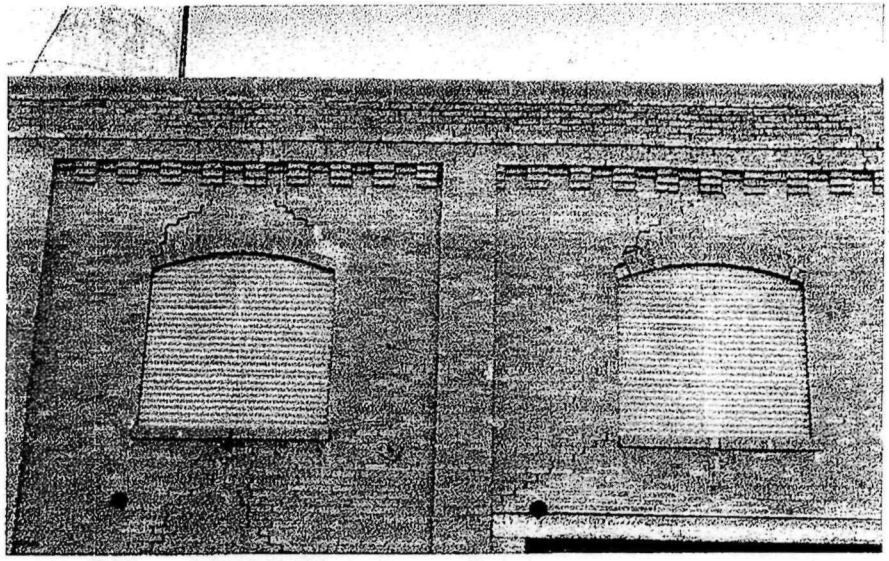
Photograph 9 - Loose Bricks at Roof Parapet



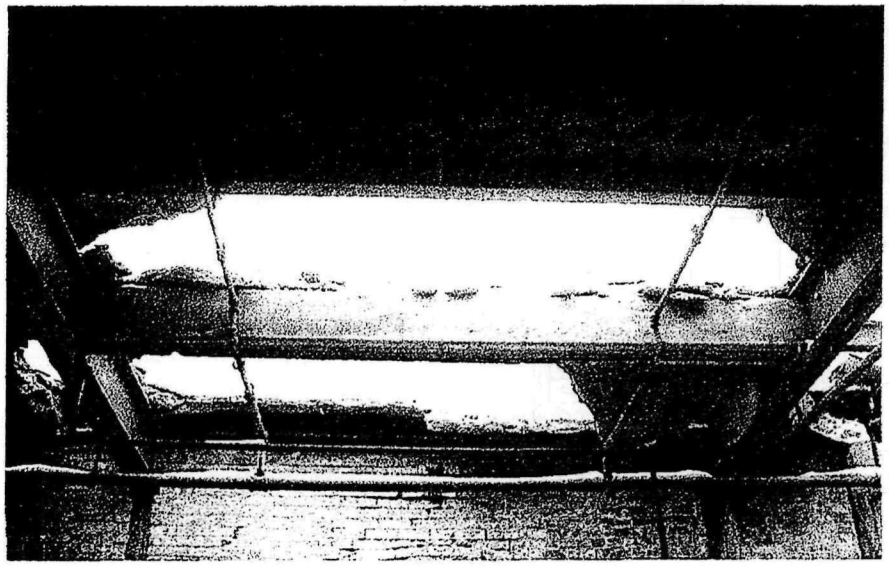
Photograph 10 - Loose Bricks at Corner



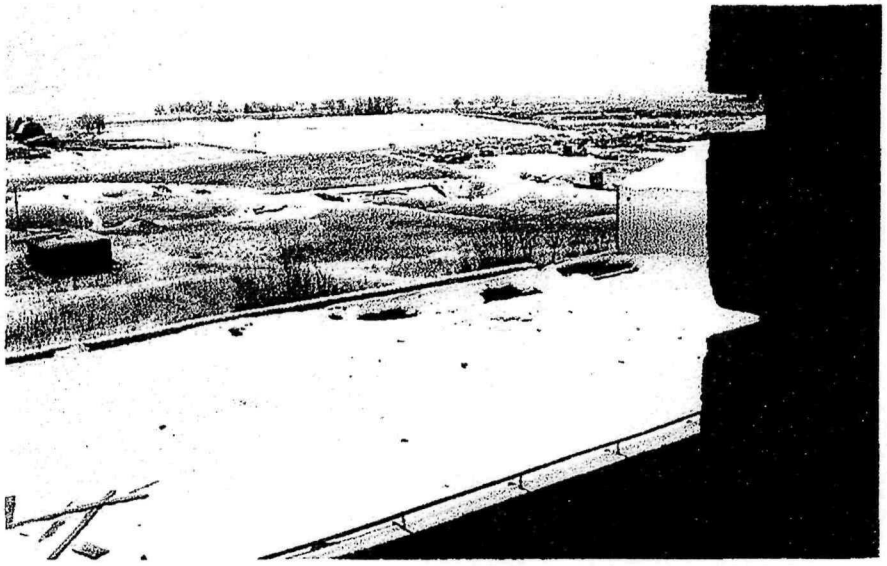
Photograph 11 - Hole in East Side of South End of Building



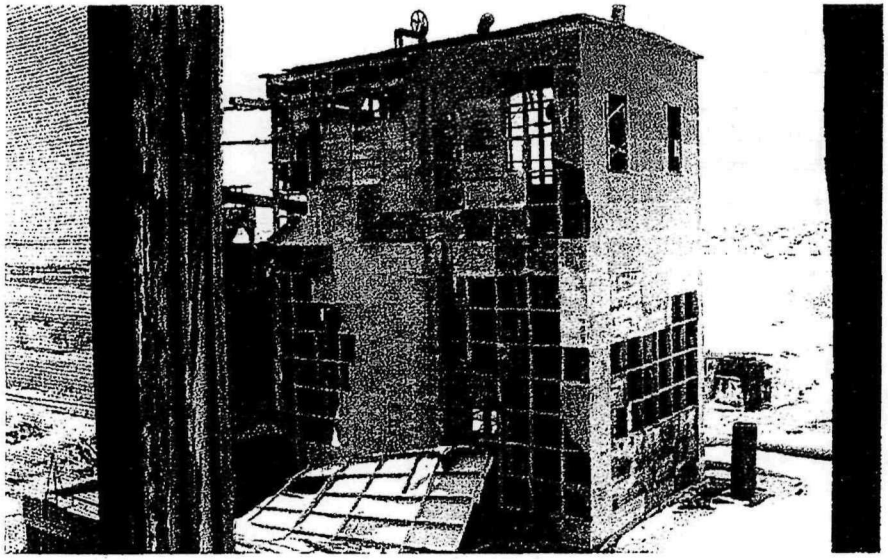
Photograph 12 - Deteriorated Arches Over Window Openings



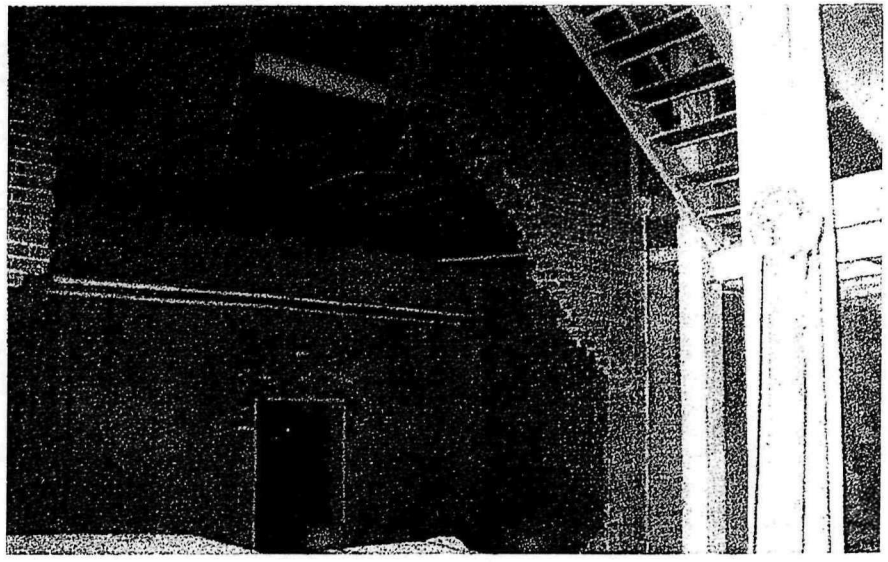
Photograph 13 - Holes in Roof



Photograph 14 - Holes in Roof

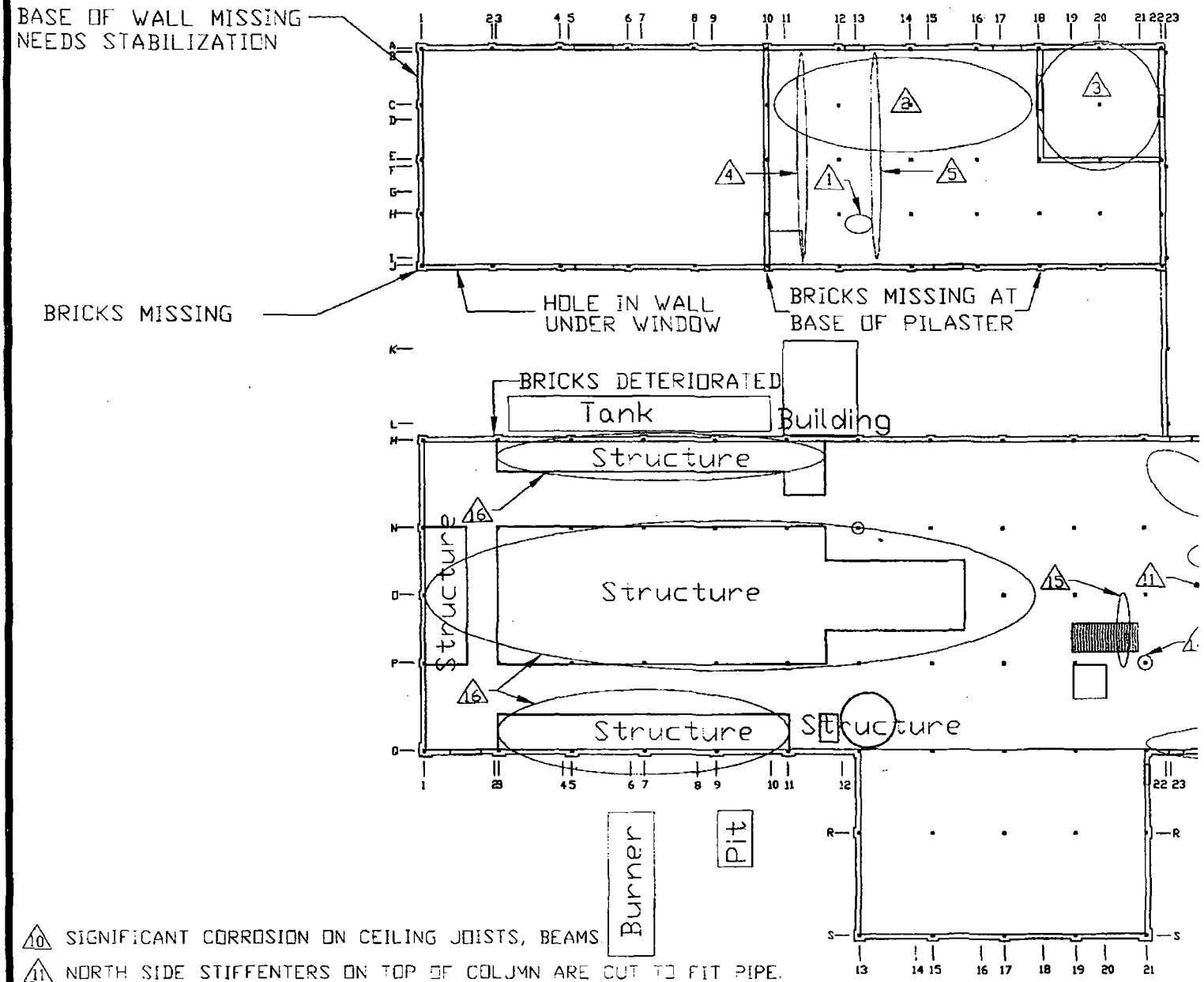


Photograph 15 - Structure on Roof of Northeast Portion of Facility



Photograph 16 - Partially Demolished Brick Wall

1. SIGNIFICANT CORROSION NEAR EXTERIOR WALL. EXPOSED REINFORCEMENT IN CIELING. SIGNIFICANT WA
2. REIFORCMENT EXPOSED. SIGNIFICANT WATER STAINS BRACE BEFORE LOADING.
3. CIELING BEAMS CORRODED & CONCRETE REINFORCEMENT VISIBLE. BRACE BEFORE LOADING.
4. WATER STAINS AND CRACKING
5. WATER STAINS AND CRACKING



10. SIGNIFICANT CORROSION ON CEILING JOISTS, BEAMS.
11. NORTH SIDE STIFFENTERS ON TOP OF COLJMN ARE CUT TO FIT PIPE.
12. BOTTOM FLANGE OF GIRDER 34 IS BENT AT WEST SIDE OF COLUMN Q
    ALSO BOTTOM FLANGE OF RIM JOIST CHANNEL BENT AT COLUMN Q34.
    AND FLOOR REINFORCEMENTEXPOSED.
13. SIGNIFICANT CORROSION ON EXTERIOR RIM JOIST
14. NORTH STIFFENER AT BASE OF COLUMN BROKEN, NO OTHER SIGNS OF STRAIN.
15. BEAM ALONG SOUTH SIDE OF STAIR OPENING HAS BOTTOM FLANGE
    CUT OUT. NEEDS BRACING ADJACENT TO BEAM.
16. SIGNIFICANT CORROSION. BEAM N13 TO N14 EXTREMELY CORRODED BRACE BEFOR LOADING.

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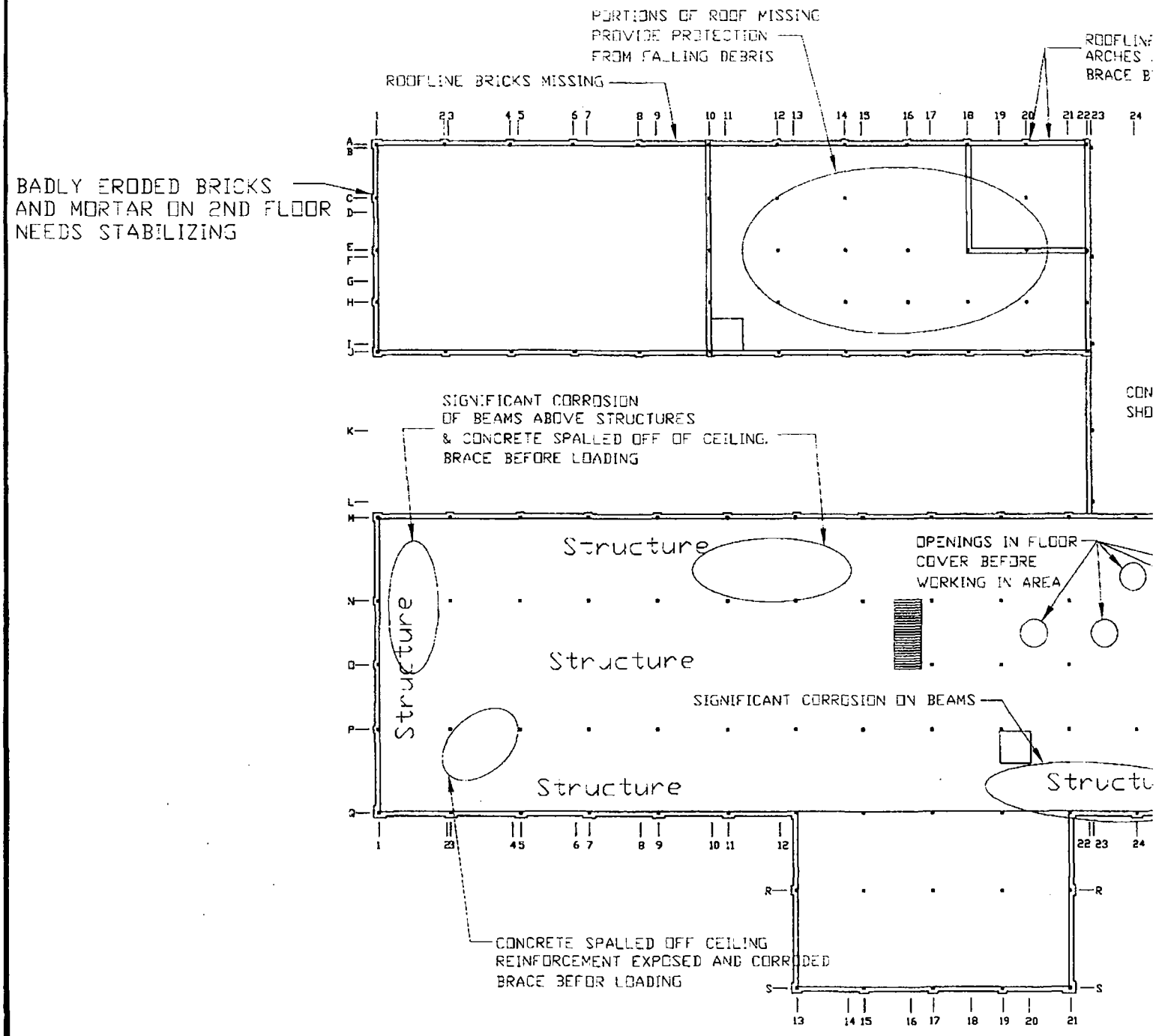
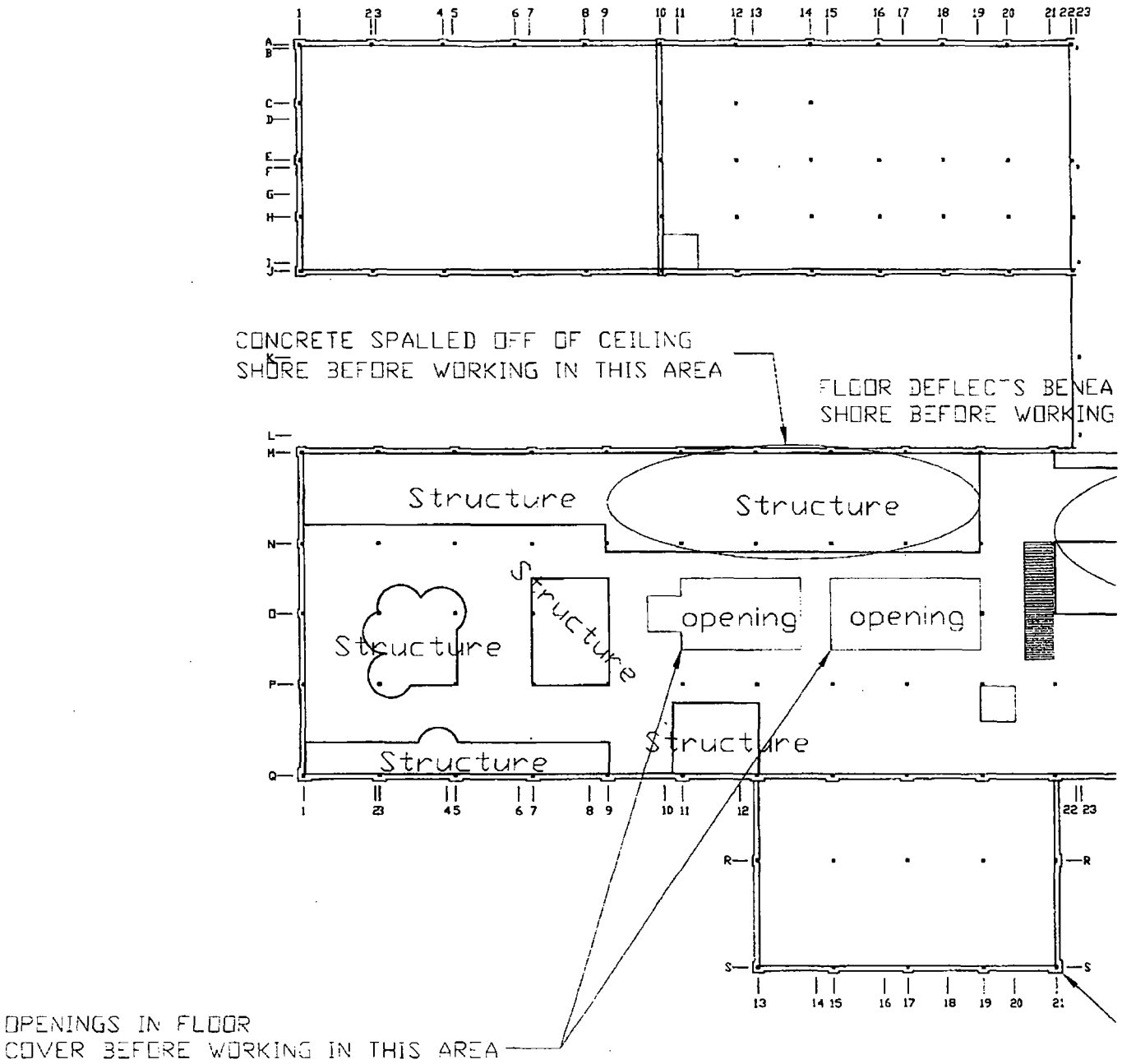
9


PORTIONS OF ROOF MISSING
PROVIDE PROTECTION
FROM FALLING DEBRIS
ROOFLINE BRICKS MISSING
BADLY ERODED BRICKS
AND MORTAR ON 2ND FLOOR
NEEDS STABILIZING
SIGNIFICANT CORROSION
OF BEAMS ABOVE STRUCTURES
& CONCRETE SPALLED OFF OF CEILING.
BRACE BEFORE LOADING
Structure
Structure
Structure
Structure
OPENINGS IN FLOOR
COVER BEFORE
WORKING IN AREA
SIGNIFICANT CORROSION ON BEAMS
CONCRETE SPALLED OFF CEILING
REINFORCEMENT EXPOSED AND CORRODED
BRACE BEFOR LOADING


CONCRETE SPALLED OFF OF CEILING
SHORE BEFORE WORKING IN THIS AREA
FLOOR DEFLECTS BENEA
SHORE BEFORE WORKING
Structure
Structure
Structure
Structure
opening
opening
Structure
Structure
OPENINGS IN FLOOR
COVER BEFORE WORKING IN THIS AREA